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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NGUYEN, CINDY	

ART UNIT	PAPER NUMBER
2161	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/739,994	BISGAARD-BOHR ET AL.	
	Examiner	Art Unit	
	Cindy Nguyen	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,6-9,14-17 and 22-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6-9,14-17 and 22-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is response to amendment filed 06/14/07.

Response to Arguments

Applicant's arguments, with respect to *Claim Rejections - 35 USC § 101* have been fully considered and are persuasive. The rejection has been withdrawn.

Applicant's arguments have been fully considered but they are not persuasive. Applicant argued that non of the cited references teaches " a basket database table that contains summary information about the retail transaction data, a department database table that contains aggregate information about the retail transactional data, or a data model mapped to aggregate the transactional data for cluster analysis of shopping behavior. In response, Chadha discloses: a basket database table that contains summary information about the retain transaction data such as the mining data was drawn from sales data of a retail store chain, which transactions drawn over various periods of time. The data has an average of 12 items per sale as summary information about transactional data, col. 15, lines 21-29, Chadha), Chadha also discloses: a department database table that contains aggregate information about the retail transactional data such as (i.e. obtain candidate itemsets (item information) of data from the multi-column data store, each itemset being a combination of a number of rows of the multi-column data store, col. 10, lines 48 to col. 11, line 10, Chadha).

In addition, Bruce discloses a data model mapped to aggregate the transactional data for cluster analysis of shopping behavior such as. as matching algorithms are used in data mining system to determine the key relationships in the data, the models are used develop predictive classifiers as shopping trend, behavior, etc... page 3, last line to page 4, line 3 and fig. 3 on page 4. Bruce also discloses: a shopping related data e.g., retail transactional data, itemdata, department data are stored in tables in relational database. A data model associated/maps various data to find a shopping pattern in relational databases table are used to store data.

Further in page 5, Bruce discloses market-basket analysis, classic market-basket analysis treats the purchase of a number of items (the contents of a market shopping basket) as a single transaction, the desire is to find sets of items that are frequently purchased together, in order to understand and exploit natural buying patterns (shopping pattern), and all transactions are cluster of shopping transaction, see paragraphs 1 and 3, page 5.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6-9, 14-17, 19, 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chadha et al. (US 6301575) (hereafter Chadha) in view of Bruce Moxon, "Data mining: the Golden Promise", Copyright 1997 Miller Freeman, Inc. (hereafter Bruce).

Regarding claim 1, Chadha disclose: a computer-implemented data mining system comprising: (124, fig. 1 and corresponding text, Chadha) comprising:

a relational database managed by a relational database management system for storing retail transaction data (col. 5, lines 15-16, Chadha).

a data model that defines the manner in which said retail transaction data is stored and organized within said relational database said data model (i.e. a physical data model for association is typically organized in a schema of the form of a transaction identifier and an item transaction-id, item-id), hereafter referred to as a SC data mode, col. 8, lines 15-33, Chadha), said data model comprising:

a basket database table that contains summary information about the transactional data (i.e. as the mining data was drawn from sales data of a retail store chain, which transactions drawn over various periods of time. The data has an average of 12 items per sale as summary information about transactional data, col. 15, lines 21-29, Chadha), an item database table that contains information about individual items referenced in the transactional data (i.e. as the multiple column model (of the table), for example, for transaction-1, if three items was purchased, the MC data model would show as transaction-1 Item-1, Item-2, Item-3, col. 8, lines 53-60), a department database table that contains aggregate information about the transactional data (i.e.

obtain candidate itemsets (item information) of data from the multi-column data store, each itemset being a combination of a number of rows of the multi-column data store, col. 10, lines 48-55, Chadha)[1].

However, Chadha didn't disclose: the data model is mapped to aggregate the transactional data for cluster analysis of shopping behavior. On the other hand, Bruce discloses: the data model is mapped to aggregate the transactional data for cluster analysis of shopping behavior (i.e. as matching algorithms are used in data mining system to determine the key relationships in the data, the models are used develop predictive classifiers as shopping trend, behavior, etc... page 3, last line to page 4, line 3 and fig. 3 on page 4, Bruce). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include data model is mapped to aggregate the transactional data for cluster analysis of shopping behavior in the combination system of Chadha as taught by Bruce. The motivation being to enable the data mining system provided these discovery-based techniques to develop models that expose fundamental interrelationships found in the data and capable of examining numerous multidimensional data relationships, example in the retail industry, they are used to analyze the purchase of goods and to develop targeted marketing campaigns (page 5, 2nd paragraph, Bruce).

In addition, Chadha/Bruce discloses wherein the data model is accessed from a relational database managed by a relational database management system (col. 5, lines 15-16, Chadha).

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[1] Shopping related data e.g., retail transaction, itemdata, department data are stored in tables in relational

Wherein the cluster analysis groups the transactional data into coherent groups according to perceived similarities in the transactional data (i.e. as clustering is used to identifies groups of closely related records that you can use as a starting point for exploring further relationships of interest, page 5, 7th paragraph, lines 1-3 , Bruce). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include cluster analysis groups the retail transaction data in the combination system of Chadha as taught by Bruce. The motivation being to enable the process is performed by clustering algorithms that identify the distinguishing characteristics of the dataset , with clustering, users do not need to identify the groupings desired or the attributes needed to segment the dataset, see page 5, paragraph 6, Bruce.

Regarding claim 9, Chadha disclose: a method, , for analyzing retail transactional data (analysis of market-basket data, col. 8, line 66, Chadha) in a computer-implemented data mining system (124, fig. 1 and corresponding text, Chadha) comprising:

Maintaining a relational database managed by a relational database management system for storing retail transaction data (col. 5, lines 15-16, Chadha).

generating a data structure (col. 8, lines 19-21) in the computer-implemented data mining system (124, fig. 1 and corresponding text, Chadha), wherein is a data

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database 116, fig. 1. a data model associated/maps various data to find a shopping pattern in relational

model (physical data model, col. 8, lines 15, Chadha) that defines the manner in which said retail transaction data is stored and organized within said relational database said data model (i.e. a physical data model for association is typically organized in a schema of the form of a transaction identifier and an item transaction-id, item-id), hereafter referred to as a SC data mode, col. 8, lines 15-33, Chadha), said data model comprising: a basket database table that contains summary information about the transactional data (i.e. as the mining data was drawn from sales data of a retail store chain, which transactions drawn over various periods of time. The data has an average of 12 items per sale as summary information about transactional data, col. 15, lines 21-29, Chadha), an item database table that contains information about individual items referenced in the transactional data (i.e. as the multiple column model (of the table), for example, for transaction-1, if three items was purchased, the MC data model would show as transaction-1 Item-1, Item-2, Item-3, col. 8, lines 53-60), a department database table that contains aggregate information about the transactional data (i.e. obtain candidate itemsets (item information) of data from the multi-column data store, each itemset being a combination of a number of rows of the multi-column data store, col. 10, lines 48-55, Chadha);

Mapping the data model to aggregate the transactional data for cluster analysis of shopping behavior (i.e. as matching algorithms are used in data mining system to determine the key relationships in the data, the models are used develop predictive classifiers as shopping trend, behavior, etc... page 3, last line to page 4, line 3 and fig. 3

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database tables are used to store data.

on page 4, Bruce). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include data model is mapped to aggregate the transactional data for cluster analysis of shopping behavior in the combination system of Chadha as taught by Bruce. The motivation being to enable the data mining system provided these discovery-based techniques to develop models that expose fundamental interrelationships found in the data and capable of examining numerous multidimensional data relationships, example in the retail industry, they are used to analyze the purchase of goods and to develop targeted marketing campaigns (page 5, 2nd paragraph, Bruce).

In addition, Chadha/Bruce discloses performing cluster analysis to group said retail transactional data into coherent groups according to perceived similarities in the retail transaction data and presenting the results of the said cluster analysis to a user (i.e., discovered relationships in terms of confidence-rated rules, such as "80 percent of all transaction in which beer was purchased also included potato chip... all transactions are cluster of shopping transaction, and the assignment of records with a large number of attributes into a relatively small set of groups or "segments" by clustering algorithms that identify the distinguishing characteristics of the data set, see page 5, paragraphs 3 and 6). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include cluster analysis groups the retail transaction data in the combination system of Chadha as taught by Bruce. The motivation being to enable the process is performed by clustering algorithms that identify the distinguishing characteristics of the dataset , with clustering, users do not need to identify the

groupings desired or the attributes needed to segment the dataset, see page 5, paragraph 6, Bruce.

Regarding claim 17, Chadha disclose: an apparatus for analyzing retail transactional data (analysis of market-basket data, col. 8, line 66, Chadha) in a computer-implemented data mining system (124, fig. 1 and corresponding text, Chadha) comprising:

a relational database managed by a relational database management system for storing retail transaction data (col. 5, lines 15-16, Chadha).

means for generating a data structure (col. 8, lines 19-21) in the computer-implemented data mining system (124, fig. 1 and corresponding text, Chadha) means for generating a data structure is a data model that defines the manner in which said retail transaction data is stored and organized within said data mining system said data model (i.e. a physical data model for association is typically organized in a schema of the form of a transaction identifier and an item transaction-id, item-id), hereafter referred to as a SC data mode, col. 8, lines 15-33, Chadha), said data model comprising: a basket database table that contains summary information about the transactional data (i.e. as the mining data was drawn from sales data of a retail store chain, which transactions drawn over various periods of time. The data has an average of 12 items per sale as summary information about transactional data, col. 15, lines 21-29, Chadha), an item database table that contains information about individual items

referenced in the transactional data (i.e. as the multiple column model (of the table), for example, for transaction-1, if three items was purchased, the MC data model would show as transaction-1 Item-1, Item-2, Item-3, col. 8, lines 53-60), a department database table that contains aggregate information about the transactional data (i.e. obtain candidate itemsets (item information) of data from the multi-column data store, each itemset being a combination of a number of rows of the multi-column data store, col. 10, lines 48-55, Chadha).

Means for mapping the data model to aggregate the transactional data for cluster analysis of shopping behavior (i.e. as matching algorithms are used in data mining system to determine the key relationships in the data, the models are used develop predictive classifiers as shopping trend, behavior, etc... page 3, last line to page 4, line 3 and fig. 3 on page 4, Bruce). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include data model is mapped to aggregate the transactional data for cluster analysis of shopping behavior in the combination system of Chadha as taught by Bruce. The motivation being to enable the data mining system provided these discovery-based techniques to develop models that expose fundamental interrelationships found in the data and capable of examining numerous multidimensional data relationships, example in the retail industry, they are used to analyze the purchase of goods and to develop targeted marketing campaigns (page 5, 2nd paragraph, Bruce).

In addition, Chadha/Bruce discloses performing cluster analysis to group said retail transactional data into coherent groups according to perceived similarities in the

retail transaction data and presenting the results of the said cluster analysis to a user (i.e., discovered relationships in terms of confidence-rated rules, such as "80 percent of all transaction in which beer was purchased also included potato chip... all transactions are cluster of shopping transaction, and the assignment of records with a large number of attributes into a relatively small set of groups or "segments" by clustering algorithms that identify the distinguishing characteristics of the data set, see page 5, paragraphs 3 and 6). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include cluster analysis groups the retail transaction data in the combination system of Chadha as taught by Bruce. The motivation being to enable the process is performed by clustering algorithms that identify the distinguishing characteristics of the dataset , with clustering, users do not need to identify the groupings desired or the attributes needed to segment the dataset, see page 5, paragraph 6, Bruce.

Regarding claims 6, 14 and 22, all the limitations of these claims have been noted in the rejection of claims 1, 9 and 17, respectively. In addition, Chadha/Bruce discloses: wherein the data model is mapped into a single flat table format to produce a correct level of aggregation for statistical analysis (i.e. the transaction-id value would be repeated for every item bought in that transaction, col. 8, lines 20-33, Chadha).

Regarding claims 7, 15 and 23, all the limitations of these claims have been noted in the rejection of claims 1, 9 and 17, respectively. In addition, Chadha/Bruce disclose: wherein the data model is mapped into a database view to produce a correct

level of aggregation for statistical analysis (i.e. as classic market-basket analysis treats the purchase of a number of items as a single transaction. The desire is to find sets of items that are frequently purchased together in order to understand and exploit natural buying patterns, page 5, 1st paragraph, Bruce).

Regarding claims 8, 16 and 24, all the limitations of these claims have been noted in the rejection of claims 1, 9 and 17 above, respectively. In addition, Chadha/Bruce discloses: wherein the data model is comprised of one row per transaction in the transactional data (i.e. as in single column data model, the transaction-id value would be repeated for every item bought in that transaction, col. 8, lines 20-36, Chadha).

Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chadha et al. (US 6301575) (hereafter Chadha) in view of Bruce Moxon, "Data mining: the Golden Promise", Copyright 1997 Miller Freeman, Inc. (hereafter Bruce) and further in view of Fayyad et al. (US 6263337).

Regarding claims 25-27, all the limitations of these claims have been noted in the rejection of claims 1, 9 and 17, respectively. In addition, Chadha/Bruce didn't disclose: wherein the cluster analysis utilizes a Gaussian Mixture Model. On the other hand, Fayyad discloses: wherein the cluster analysis utilizes a Gaussian Mixture Model (120, fig. 4 and corresponding text and col. 9, lines 22-67, Fayyad). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include the cluster analysis utilizes a Gaussian Mixture Model in the combination

system of Chadha/Bruce as taught by Fayyad. The motivation being to enable the system to process using Gaussian mixture model for better clustering by applied to a mixture of Gaussians justified criteria for deciding which data can be summarized.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cindy Nguyen whose telephone number is 571-272-4025. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cindy Nguyen

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SUPERVISORY PATENT EXAMINER